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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,067	12/04/2001	Makoto Kitamura	018976-211	9557

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Platon N. Mandros
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

NGUYEN, THUKHANH T

ART UNIT PAPER NUMBER

1722

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,067

Applicant(s)

KITAMURA ET AL.

Examiner

Thu Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 1-14, 20-35, 38, 40 and 65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 36, 41, 44-52, 54-55, 57-62 is/are rejected.
- 7) ☒ Claim(s) 16-19, 37, 39, 42, 43, 53, 56, 63 and 64 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Claims 15-19 and 36-64 in Paper No. 10 is acknowledged. During a telephone conversation on August 22, 2003, Mr. Harold Brown has selected claim 39 for examination. Claims 38 and 40 have been withdrawn from prosecution. Explanations for this restriction could be found in the last Restrictions paper, paragraph 10.

Claim Objections

2. Claim 45 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 41. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). In claim 45, the linking means and the fixing means have already claimed in claim 36, the only new feature is the fastening means which has been claimed in claim 41.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 15, 46, 59 and 62 are rejected under 35 U.S.C. 102(b) as being anticipated by Shapiro (3,677,673).

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Shapiro teaches a rotary press, comprising a rotary die table (36), a plurality of die means and upper and lower punch units (col. 3, lines 70-75); a compression driving means (160, 166, 54) for pressing the upper and lower punch units (144, 52) into the die cavities (106), linking means (152, 139) for linking the punch units to the compression driving means; the lower die punch units having a first punch (114) and a second core punch (118) independently driven by a first and second driving shafts (110, 119); and a second linking means (122, 126, 146) for linking the punches to the die, a fixing means (102) for mounting and fixing the die the die set along with the punches, a fastening means (120, 124, 130, 135, 137) for collectively fastening the punches to the driving shaft.

The apparatus further comprises a driving base frame (12) centrally supporting the driving shafts (14, 110, 119, 154), wherein the punches and the die punches are moved synchronously (col. 8, lines 20-25); upper end portion of one driving shaft (154) is linked to an upper mold supporting plate (46), and the driving shaft is a ball screw (132). The apparatus also includes a hopper (50) connecting to a supply tube (89), a powder injecting hole (92) at the bottom wall of the storing unit, and a scraping blade (96) for scraping away excess material (col. 8, lines 8-12), wherein the powder supply opening of the supply tube is positioned so as to be offset outwards from the center of the powder injecting hole (Fig. 5) and passes through the ceiling of the powder storing unit, wherein the scraping blade (96) is provided independently from the powder storing unit (50).

5. Claims 15 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Hudson (4,789,323).

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Hudson teaches a ring making apparatus a rotary table (13) for transferring a mold containing a die (16) and a punch units (18, 26) between a powder supply stage (48), a pressing stage (29), and a product removal stage (42; col. 5, lines 6-10); a pressing driving means (12) for driving the punch units at the pressing stage; a charging driving mechanism (48-50); a product take-out mechanism (42); a connecting mechanism (10, 11, 27) for connecting the punch units to the press driving mechanism, the charging driving mechanism, and a product takeout mechanism.

The apparatus further comprises a unit holding mechanism (21, 29) for holding the punch units while the units are transferred to the next stage; wherein the punch units each includes a first and second upper punches (31, 34) and a first and second lower punches (23, 26); and actuators (24, 33, 12) for independently driving the punches; a linking means (28, 29) for linking the punches to the die.

6. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Kurata (5,686,118).

Kurata teaches an apparatus for compressing powder, comprising a mold including a die table (11) and upper and lower punch units (15, 31), a mold transporting mechanism (21-25, 35-37) for transporting the mold between a powder supply stage (Fig. 6A), a compressing molding stage (Fig. 6B), and a molded articles extracting stage (7A-B), a compression driving mechanism (21-22, 35-36) for driving the upper and lower punch units, a linking means (17-19, 37) for linking the punch units to the compression driving means, which comprises upper and lower driving shafts (16, 32), and a fixing means (1b) for mounting and fixing the die to the die set along with the first and second punch units.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 36, 41, 44-52, 54-55, and 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shapiro ('673) as applied to claims 15, 46, 59 and 62 above, and further in view of Matsubara et al (6,004,120).

Shapiro discloses a rotary press as described above, but fails to disclose that the upper punch unit includes a first and second punches, and that the punches are driven by driving shafts inserted in a hollow outer cylinder with the inner cylinder movable in axial direction.

Matsubara et al disclose a tool set type powder compacting press, comprising upper and lower punch units (5, 10, 201, 202), each includes a first punch (5a, 10a, 201b) and a second punch (5b, 10b, 203, 204) each independently driven by first and second shafts (205, 207) inserted in a hollow outer cylinder (206, 10c) and an inner cylinder (208, 10a) movable within the outer cylinder; wherein the inner cylinder and outer cylinder are independently driven by a hydraulic means (col. 11, line 30-31 and 38-40) and the cylinders supported on a frame plate (1, 7, 8) and the die is supported on a movable plate (3).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shapiro by providing the upper punch unit with a plurality of punches that are independently driven by different shafts position in an inner and outer cylinders that are supported by a plurality of plates as taught by Matsubara et al, because the plurality of

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punches would enable the apparatus to form product having different levels or profiles on the upper surface; while independent movement of the shafts would improve the pressing at different particular sections within the mold cavity, and the cylindrical within the hollow outer cylindrical would improve the support of the shaft as it driving the punches up and down.

9. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapiro ('673) as applied to claims 15, 46, 59 and 62 above, and further in view of Hirai (5,037,287).

Shapiro discloses a pressing apparatus having a powder scraping blade to scrape the excess material from the die, but fails to disclose that the blade tip is displaced at an acute angle to the surface of the die.

Hirai discloses a pressure molding means for powder, comprising a scraping plate (35) disposed at an acute angle (Figs. 1-3, 35).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shapiro by displacing the scraping blade at an acute angle as taught by Hirai, because in this position, the contact surface of the blade and the die surface would be larger than when the blade is disposed at a right angle; thus, more material would be scraping off the surface of the die.

10. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shapiro (3,677,673).

Shapiro discloses a rotary press as described above, and further discloses a carbide layer on the bottom of the feed hopper to reduce friction and wear due to friction between the hopper

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and the rotation of the die table (col. 5, lines 37-41). However, Shapiro fails to disclose that the scraping blade is made of ceramic, or carbide.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Shapiro by also providing a carbide layer on the scraping blade to improve the wear resistance because the carbide layer would be harder than other molding material, in order to form uniform articles over a long period of time (co. 5, lines 39-41).

Allowable Subject Matter

11. Claims 16-19, 37, 39, 42-43, 53, 56, and 63-64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 16-19, the prior art fails to teach or suggest a linking means for detachably linking the punch units to the compression driving mechanism, comprising a clamp main unit positioned and fixed on the compression driving mechanism, a sliding claw movably supported on the clamp main unit in an orthogonal direction, and a sliding driving mechanism for driving the sliding claw between a linking position and a non-linking position (Figs. 8-11, 64).

In regard to claim 37, the prior art fail to teach or suggest a second linking means for linking the first and second punches to the die, comprising grooves formed on each of the first and second punch holders extending in the compression direction, engaging pin of the die is

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engaged with the groove the first punch holder; and engaging pin of the first punch holder is engaged with the groove on the second punch holder (Figs. 24-29; 228c-230c, 232-234).

In regard to claim 39, the prior art fail to teach or suggest a fixing means including an actuator and a pressing member, wherein the actuator presses and fixes the pressing member in between the die to the die set to connect the die and the die set.

In regard to claims 42-43, the prior art fail to teach or suggest a fastening means comprising a hook-shaped claw members erected on pressure ram of the driving shafts, engaging pins fixed on each punch holder of the first and second punches; wherein the fastening means are configured to fasten the punch holders by engaging the engaging pins with the claw members (Fig. 12).

In regard to claims 53 and 56, the prior art fails to teach or suggest that the driving shafts of each of the punches are ball screws and connected to servo motors by timing belts.

In regard to claim 63, the prior art fails to teach or suggest a tapered portion at an edge of the powder injecting hole, which is formed at a portion of a bottom wall of a powder storing unit, so that the tapered portion would fit with a blade tip of a scraping blade.

In regard to claim 64, the prior art fails to teach or suggest that the scraping blade is provided independently from the powder storing unit, passes through a slit formed in the powder storing unit and extends into the powder storing units, and is driven by an actuator disposed outside of the powder storing unit.

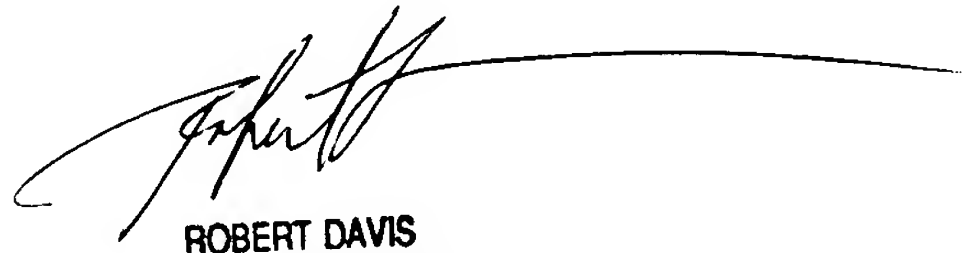
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 703-305-7167. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

TN



ROBERT DAVIS
PRIMARY EXAMINER
GROUP ~~1300~~ 1722

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